1. Introduction

Reading is fundamental to the learning and growth of children. It is a builder of language, imagination, thinking ability and emotional growth. Studies have demonstrated that reading on a regular basis helps to develop vocabulary and communication skills in children compared to those who do not read regularly. Hart & Risley, 1999) that children learn language and vocabulary through repeated exposures to spoken and written words, and reading is one way for them to have those opportunities. But today's children are becoming less inclined to traditional forms of entertainment and recreation, as video platforms and mobile games can generate excitement with much shorter duration compared to a booked. Study finds parents and teachers struggle to get children to read for pleasure Many parents and teachers say they find it hard to persuade their children to fixate on a book for long stretches (Photo: Pixabay) "She just kept tying herself in knots!

This project presents **StoryTime**, a digital reading application designed for children aged **6–12 years** to help them discover and read books in an enjoyable and simple environment. The application provides personalised book recommendations based on the child's age and interests, allows children to read digital books on the screen, and offers the option to buy printed books. The interface is intentionally simple, friendly and visually comforting, designed according to human-computer interaction principles that support young users. A mid-fidelity interactive prototype was created using Axure RP to demonstrate the core user journeys.

The purpose of this report is to describe the research and design activities undertaken during the development of StoryTime. The report documents the background research, conceptual design, prototype development, integration of HCI theory, and a proposed empirical study to evaluate usability. It ends with a reflection on how HCI principles will influence future design practice.

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2. Choice of Topic and Rationale

The project topic was chosen from the coursework brief option relating to the design of a digital application to encourage reading among children. This topic was selected because reading ability strongly influences later academic success and personal development. Research by Tizard and Hughes (2008) shows that children learn not only through school instruction but also through interaction and access to meaningful language experiences. StoryTime supports these forms of learning by providing children with the opportunity to explore and engage with books independently.

Parents and teachers interviewed during early research expressed concerns about declining reading motivation in children and difficulty finding appropriate books based on interest and reading level. Many existing reading applications include advertisements, complicated menus or gamification elements that shift attention away from learning. Therefore, StoryTime was intentionally designed without competitive reward systems or distractions, supporting comments from educators that learning should prioritise comprehension rather than reward-collecting behaviour.

This rationale aligns the project closely with real-world educational needs, making the chosen topic meaningful and justified.

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3. Literature Review and Background Research

There is extensive evidence that early reading is critical to children's learning and language development. Hart and Risley (1999) examined early childhood language environments and discovered that children exposed to a richer vocabulary perform better in terms of verbal and cognitive skills. Also, Miller and Gildea (1987) pointed out that native speakers acquire new words from meaningful exposure to language not conscious instruction; it indicates the importance of reading materials being interesting and comprehensible.

Vosniadou (2001) highlights that children construct understanding by relating new information to what they have already experienced.stemming from their previous experiences. This concept complements StoryTime's personalized book recommendations by topic, so kids feel held in place there as if they are comfortable with any story to which they can listen. Siegler (2000) also emphasizes that children are most successful when they explore on their own, finding information out through active engagement as opposed to being directly instructed.

Tizard and Hughes (2008) stress the importance of supportive environments where children feel confident to learn at their own pace. StoryTime applies this insight by providing simple navigation, calm visual design and helpful reading assistive tools such as audio narration. McLaughlin (1977) explains that learning new language skills requires exposure to repeated patterns and accessible content, which also supports the inclusion of highlighting features in the reading interface.

Together, these studies support the need for reading tools that offer independence, accessibility, and emotional comfort, which directly influenced StoryTime's design.

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4. Research Method

A preliminary qualitative investigation was conducted before prototyping in order to comprehend actual users' requirements and expectations. Five parents and three primary school teachers were interviewed through semi-structured interviews. They were to be asked about children's reading habits, common challenges and what they would need in a digital reading application.

Many kids quickly lose interest in books if they can't decide what to read or are overwhelmed by a pile of options. Parents shared that kids frequently choose not to read when confronted with complicated menus or too many choices. Teachers shared that with visual support and when being read to or seeing the text highlighted, children read more confidently. Both parents and teachers emphasised the importance of a safe environment free from advertisements or in-app distractions. These insights guided the design decisions for StoryTime, particularly the focus on simplicity, personalisation and supportive reading features.

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5. User Needs and Requirements

From the research discussions and literature review, several key user needs were defined. Young children need a reading environment that is welcoming, peaceful and not-overwhelming. They should be simple to navigate with clear directions and visual cues rather than text-heavy explanations. They need the control over reading speed, and to be able to listen to audio narration if necessary.

They need book recommendations that are tailored to their interests so they feel inspired, not lost. What parents need is a controlled and secure space for kids to read without stumbling into mature content or adverts. You also need to have a smooth process for purchasing physical printed books, without giving over sensitive payment data.Teachers need tools that support reading comprehension without replacing traditional learning.

These requirements shaped the conceptual design and prototype.

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6. Conceptual Design

The conceptual model for StoryTime is based on a step-by-step interaction flow that supports children with developing cognitive and motor abilities. The application begins with a simple login screen that offers Email login or Google/Apple login options. After login, users complete an onboarding step where they select their age, reading interests and preferences. This information is used to personalise recommended books on the Home screen.

The Home screen displays book suggestions organised into familiar categories such as "Perfect for Your Age," "Based on Your Interests", and "Trending Now." Books are represented visually

through cover images and short titles to make browsing intuitive. Children can choose to read digital books directly within the app using a clean reading interface that includes large text, audio options and highlight functionality. If they prefer printed books, they can add them to a shopping cart and complete a short checkout form. The application uses a cash-on-delivery model to simplify parental decision making. A success screen confirms the purchase and completes the user journey.

Every part of the flow was designed to be minimal, predictable and easy to understand.

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7. Prototype Development

A mid-fidelity prototype was built with Axure RP. This degree of detail was chosen because it is high enough to enable realistic user interaction simulations without elaborate graphic design or actual full visual aesthetics. The prototype focuses on navigation flow and interaction feedback rather than detailed visual decoration.

The visual style uses warm colours such as coral and mint, supported by cream backgrounds. These colours were selected because gentle hues support emotional comfort and do not overstimulate children. Typography plays a key role, with Fredoka used for large headings because it is round and friendly, and Poppins used for body text because of its readability. All buttons are large with rounded corners to support Fitts' Law considerations and children's developing motor control. Animated transitions are kept minimal to reduce distraction.

The prototype demonstrates the real experience of moving through the application and performing core reading tasks.

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8. Application of HCI Principles

Human-computer interaction theory strongly informed the design of StoryTime. Norman's discussion of affordances and signifiers guided the focus on clear visual communication. Buttons and icons indicate their purpose through shape, colour and shadow, making actions immediately obvious. Nielsen's heuristic of visibility of system status was applied by including confirmation screens, progress visibility and real-time feedback in the digital reading environment.

Cognitive load theory influenced decisions to keep screens visually simple and limit the number of available options at each step. Young users benefit from predictable structures where they are not forced to make too many decisions at once. Fitts' Law was applied by ensuring large click/tap targets with sufficient spacing. Accessibility guidance from W3C supported decisions about text size, high contrast and the inclusion of audio narration and highlighting tools.

These theories ensured that the design remained aligned with the needs of children rather than adult conventions.

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9. Empirical Research Study Plan

The research objective of the proposed empirical study is to test the usability, clarity and efficacy of StoryTime interface. The research question for the study is defined as:
How effectively does the StoryTime application support children aged 6–12 in discovering and reading books through a simple and accessible digital interface?

A mixed-method approach will be used combining observation and questionnaires. Regardless of their habitual water preference, six 7–10 year-old children will participate in usability testing with two parents as 'observers for comfort' on ethical grounds. All the experiences will invite children to complete a variety of real task, like creating a username and password, choosing a book recommendation, reading the first page and "checking out" with a printed book. The researcher will observe hesitation, confusion, task difficulty and natural usage patterns.

After the tasks, participants will answer short feedback questionnaires using rating scales to measure satisfaction, ease of use and perceived confidence. Ethical considerations include informed parental consent, anonymisation and voluntary withdrawal. No sensitive data will be collected.

Data from the study will help refine areas such as button placement, wording clarity and presentation of book recommendations. The study is expected to show that children can complete tasks independently with minimal guidance if the interface is intuitive.

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10. Reflection and Future Practice

Completing this project has provided valuable experience in applying HCI theory to a real educational application. The research highlighted the importance of listening to what people need versus assuming and taking into account these assumptions. Research in the Literature Review revealed that children learnt through exploration and positive environments (Siegler, 2000: Tizard & Hughes, 2008). Interviews demonstrated that children require interfaces that feel calm, friendly and predictable. Some given consideration to cognitive load, visual design and ethical responsibility.

There may be scope in the future for introducing additional accessibility features such as dyslexia-friendly reading environments, night mode or parent progress dashboards. A future product might also include social reading tools enabling kids to recommend books in a safe online community.However, any future additions must remain aligned with the educational expectations identified in research rather than shifting towards entertainment or commercial priorities.

This project has strengthened my understanding of designing digital systems that must balance usability, educational purpose and user safety. The experience will influence my future design practice by reinforcing the importance of research-supported decisions, user testing and minimalistic interaction design.

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11. Conclusion

This paper discussed the design and implementation of StoryTime, a digital reading application that helps children from six to twelve years old form better reading habits. The project consisted of the research, ideation, prototypic system development and a basis for usefullness assessment. The literature reviewed supported the importance of supportive reading environments and personalisation. The interviews confirmed that children need simple, calm and visually clear interfaces. Applying HCI theory helped ensure that StoryTime is accessible, understandable and meaningful for young users. The empirical study will verify the effectiveness of the design and guide future improvement. StoryTime offers a practical contribution to educational technology and has the potential to positively support child learning and development.

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12. References (Harvard Style)

Hart, B., Risley, T. R., & Risley, T. R. (1999). *The social world of children learning to talk*. PH Brookes Pub.

Miller, G. A., & Gildea, P. M. (1987). How children learn words. *Scientific American*, 257(3), pp.94-99.

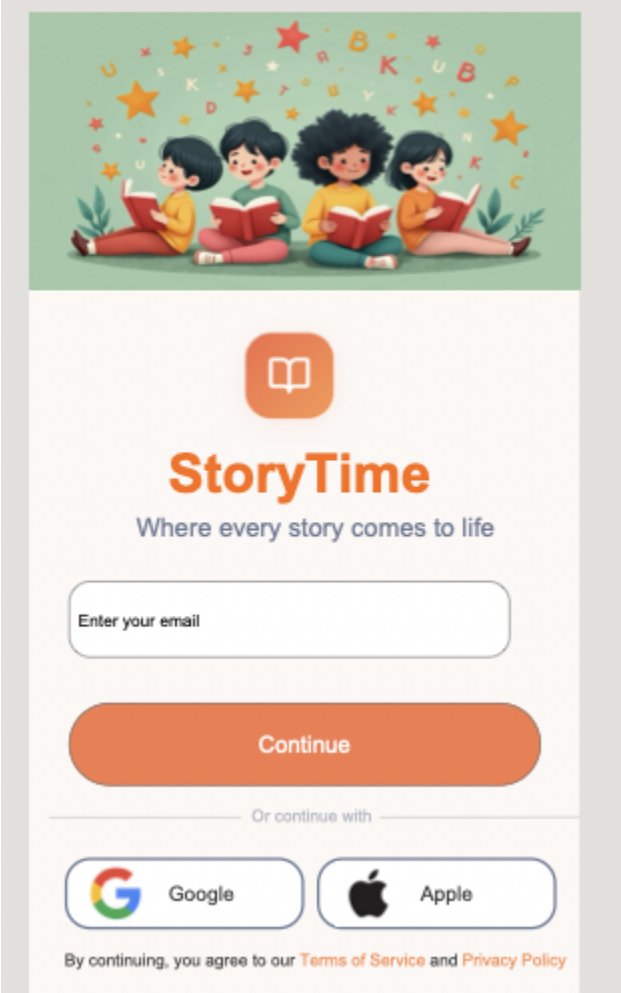
Vosniadou, S. (2001). *How children learn* (Vol. 7). Brussels: International Academy of Education.

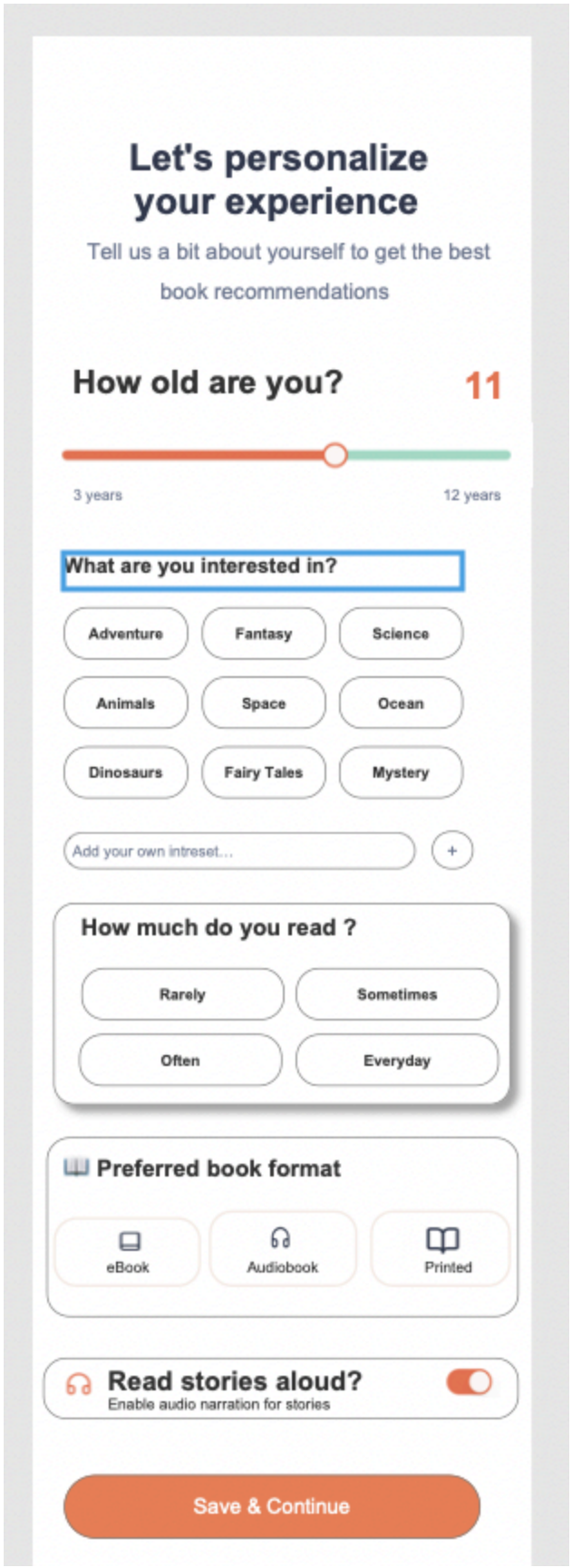
Siegler, R. S. (2000). The rebirth of children's learning. *Child Development*, 71(1), pp.26-35.

McLaughlin, B. (1977). Second-language learning in children. *Psychological Bulletin*, 84(3), pp.438-439.

Tizard, B., & Hughes, M. (2008). *Young children learning*. John Wiley & Sons.

13. Appendices

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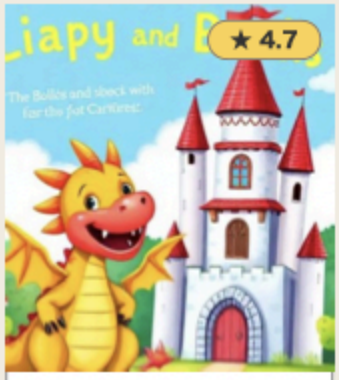

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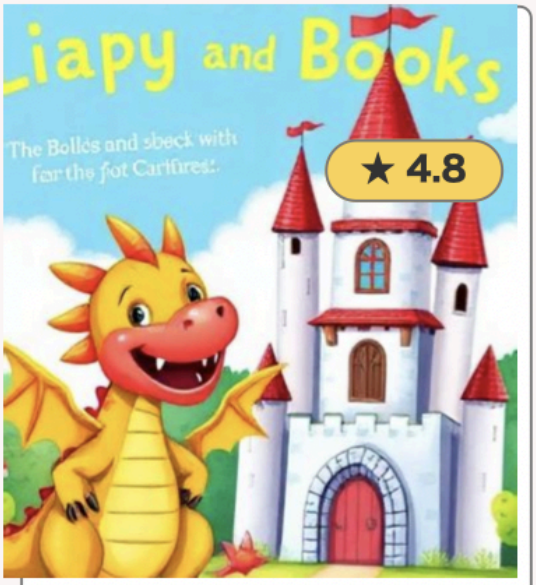

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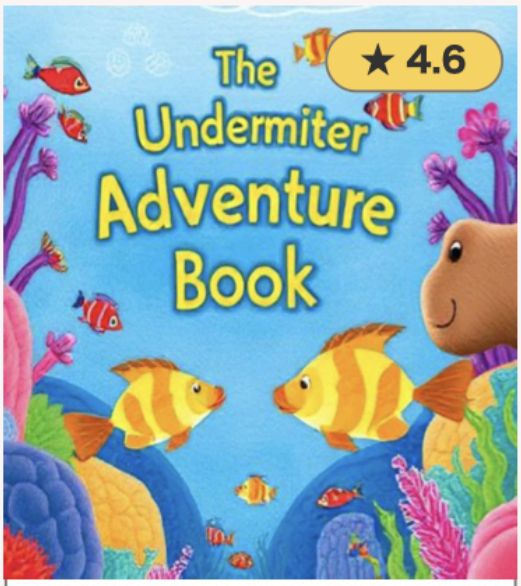

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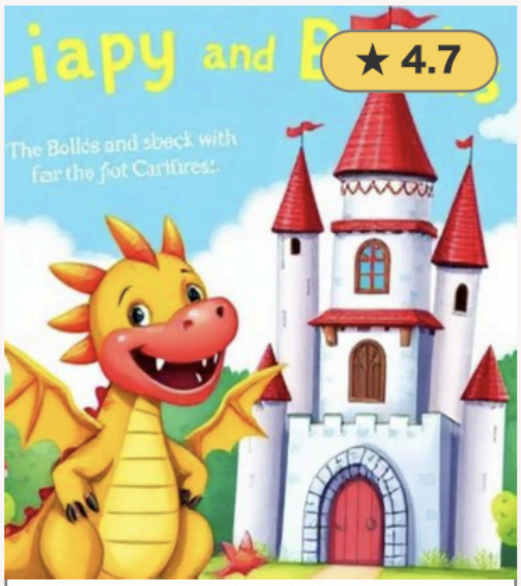

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